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SUPPLEMENT TO
REPORT NO.

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C 3532

SOURCE Documentary

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The attached report on the copper industry of the USSR, compiled from overt publications, is being sent to you for retention in the belief that it may be of interest.

- Attachments: A. Report on the Copper Industry in the USSR
1. Chart of Copper Works and Copper Deposits in the Soviet Union (31 copies)
 2. List of Copper Regions in the USSR.

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CLASSIFICATIONCOUNTRY Soviet Union

REPORT NO. _____

TOPIC The Copper Industry in the Soviet Union

EVALUATION _____ CE OBTAINED _____

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REFERENCES _____

PAGES _____ ENCLOSURES (No. & Type) 1 map
1 ~~XXXX~~ tabulated chart

SOURCE *

; General indications:

a. Raw material basis for copper production

According to official Soviet indications the total resources
(categories A to C) of the Soviet Union were 17.1 million tons (Cu-

content of the ore) in 1937. 7.9 million tons of this amount

were of the A and B categories, that is to say these deposits

were prospected and opened. 93 percent of the total copper re-

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erves are distributed in following four large areas:

(sources No.3,4,and 7)

Area	Reserves in terms of copper content	Percentage of total reserves
Urals	2.7 million tons	16
Kazakhstan	9.0 " "	53
Uzbekistan	2.6 " "	15
Armenia	1.6 " "	9
Other areas	1.2 " "	7
Total	17.1 " "	100

Meanwhile the proven reserves may have increased to about 20 million tons due to intensive prospecting activities. This refers mainly to the deposits of the Categories A and B. The large but so far little explored resources of Kazakstan and Central Asia and, to a smaller extent, those of the Caucasus area mainly account ^{for} to the increase of reserves. This tendency was already indicated in prewar years. The deposits in the Urals can be considered as proven reserves due to long-time prospecting activities.

The proven reserves (Categories A and B) as of 1937 would ^{alone} ~~even~~ last about 30 years even at an annual production of 275,000 tons of primary copper (presumable ~~xxxxxxx~~ 1950 planning figure).

in the long run
However, a rapid exhaustion of the Urals reserves resulting

in a transfer of copper production (ore ~~xxx~~ mining and smelting)

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to Central Asia must then be expected.

The ore ~~deposits~~ deposits in the Soviet Union have an average copper content of 1.1 percent. Many deposits presently being mined still have a copper content of 2 to 5 percent, but this percentage figure is on the decline due to the exhaustion of rich ore occurrences. (2,3,4,5,7)

b. The 1940 primary and secondary copper production in the Soviet Union amounted to 160,000 tons (3). It may have reached 190,000 tons in 1945 and will be increased to 300,000 tons in 1950. (According to source No. 3 it will be 1.6 times that of 1945).

The attainment of this target figure will depend on the especially realization of following projects:

(1) Completion of the large Kazakpai -Dzhezkazgan Copper Combine

(2) Expansion of the Balkhash-Kounrad Combine

(1) and (2) each (more than) have/a provisional annual capacity of 150,000 tons of crude copper)

(3) Expansion of the MEDNOGROSK Plant in the Urals.

At present (and also in 1950) still about 55 percent of copper production will be centered in the Urals though provisions are made in the Five Year Plan to adjust the

Kazakstan production share to the Kazakstan share of

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reserves (53 percent) (6,9) The significance of the Caucasus production and of other regions continues to be on the decline. (2,3) Its share in the total 1950 production may be estimated at 5 to 6 percent. The presumable crude-and electrolytic copper production (excluding treatment of imported material) is listed in the following chart (estimates):

Primary and secondary copper production:

1940 160,000 ton etc. (for figures see German text)

Following capacity is available for the production of 300,000 tons of crude copper (1,2,3,4)

Location	Plant.	Capacity	Note
(1) MONCHEGORSK Kola Peninsula	Nickel-Copper Combine	slight	originally planned capacity: 10,000 tons
(2) PITKAERANTA Karelia	Copper Works	-	At present not in operation
(3) ALAVERDI Armenia	Copper Works	15,000 tons	Two smelting works. The new one has a capacity of 10,000 tons
(4) SANGESUR Armenia	Concentration Combine	5,000 tons	The capacity is said to be 10,000 tons
(5) KRAZNOURALSK Urals	Copper Works	40,000 tons	
(6) KIROVGRAD formerly KALATA Urals	Copper Works	38,500 "	

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(7) KARABASH	Copper Works	25,500 tons	
Urals			
(8) REVDA, Urals	" "	25,000 "	
(9) BAIMAK-TANALYK	" "	10,000 "	
Urals			
(10) MEDNOGORSK	" "	50,000 "	Being enlarged (Capacity may be smaller than indi- cated)
Urals			
(11) PYSHMA	Electrolytic Plant	slight	
Urals			
(12) KYSHTYM	" "	"	
Urals			
(13) KARSAKPAI	Copper Combine	50,000	Being expanded
Kazakstan			
(14) ALMALYK	" "	---	Under construction
Uzbekistan			
(15) BALKHASH	" "	over 50,000 "	Being expanded. Originally planned capacity 100,000 tons.
Kazakstan			
(16) GLUBOKOYE	"Polymetal" Combine	10,000 tons	
Altai			
(17) NORILSK	Large and small <i>plant</i>	slight	
Northwest Siberia	^{smelting works} (copper, nickel, cobalt)		

Total : 319,000 tons

Following copper works have

~~xxxxxxxxxxxxxxxxxxxx~~ of independent electrolytic plants and
electrolytic departments ~~xxxxxxxxxxxxxxxxxxxx~~ for the
production of electrolytic copper. (1,2,3).

Location of plant	Capacity	Note
PYSHMA, Urals	100,000 tons	
KYSHTYM, Urals	15,000 "	
ALAUERDI, Caucasus	-	works Dept. at the copper xx

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NORILSK, NW Siberia

Dept. at the copper works
(not yet confirmed)

LENINGRAD

"Krazny Vyborzhets" Plant -

Copper Rolling Mill,
electrolytic dept. not yet
confirmed

Also some copper works in the Urals are said to have electrolytic departments. However, they are not yet confirmed. Plans for the construction of an electrolytic plant in Kazakstan are provided in the ^{(1946 to 1950} Five Year Plan ~~xxxxx~~ (4,6,7). The construction of such a plant had been scheduled in KARAGANDA (based on the KARAGANDA-GREB Power Plant supply) already before the war. It was planned for a capacity of 100,000 tons of electrolytic copper. The ^{projected} construction of the plant itself will not start before 1950 (6). Considering the ratio between the Soviet electrolytic copper consumption and the total Soviet copper consumption as shown in the last prewar year the Soviet Union would require (an annual) plants totaling ~~a~~ capacity of about 250,000 tons to become independent of electrolytic copper imports. This figure is more than 80 percent of the total production. This goal will probably not be reached before the large KAZAKSTAN ~~xxx~~ Plant is completed. Until then the Soviet Union will have to rely on imported electrolytic copper or will have to restrict the electrolytic copper consumption.

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Resmelted copper (secondary copper) is produced by the MOSCOW

"Molotov" Smelting Works with a capacity of 35,000 tons.

Amount
This is entirely sufficient to meet the requirements of
this production. So far, ~~xxxxxxx~~ the ^{annual} Soviet/secondary
copper production was at best 25,000 tons.

Thus, a scheduled annual production of 300,000 tons of copper is set against a capacity of about 350,000 tons which

must be considered somewhat close, all the more since the

full capacity of the
KARSAKPAI and MEDNOGORSK Smelting Works ~~are~~ still being

expanded though their full capacity is included in the
However,

350,000 figure. after the realization of the building projects

(including the ALNALYK Combine) the ~~the~~ annual capacity will

at least increase to 400,000 tons ~~xxxxxxxx~~ by 1950.

c. Imports

The Soviet Union has overcome its original heavy dependence on copper imports.

About 40 percent of the copper requirements were still imported

from 1936 to 1940. However, ~~xxxxxxxxxxxxxxxx~~

also during this time these copper stocks were less used for

immediate consumption but rather for stockpiling. The copper

imports dropped to 27 percent of the total requirements in

wartime (1941 to 1945) though finished products such as

machine parts made of copper and copper alloys are not in-

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The share of copper imports declined to ~~xx~~ about 5 to 7 percent in the postwar years. These imports come from the Soviet Zone of Germany ("Mannsfeld" Copper Industry, present annual production: about 6,000 to 8,000 tons), from Finland ("Outokumpo" Plant, present annual production: about 12,000 to 14,000 tons) and - until recently - from Yugoslavia (maximum imports: 40,000 tons). The imports from these three countries do not total more than 60,000 tons (10).

Unless an intensified stockpiling tendency would cause an increase in imports a further decline and even complete stoppage of copper imports may be expected before long. This would also imply a restricted electrolytic copper consumption.

d. Consumption.

Assuming no wartime stockpiling but rather dwindling stock supplies needed for bridging production-and import gaps the average annual consumption can be computed at 260,000 to 270,000 tons during the five war years. If this wartime consumption is set against the scheduled crude copper production of 300,000 tons it proves that requirements can easily be covered from domestic production even if civilian peacetime con-

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2. Detailed information on copper resources and copper works.

Location, categories and copper content of the copper ore

in Annex 2.

Only a general survey on the individual copper works will be

~~XXXXXXXXXXXXX Detailed description of the plants will~~

~~very informative statements made by more than 150 PW's.~~

aa. Installation: Details are not available

10,000 tons of copper was scheduled. However, these figures

may not even be approached. Part of the installations were

evacuated to NORILSK and KARSACKPAI during the war. Air raid

damages have also restricted the capacity. An unconfirmed

report listed the 1947 copper production at 2,000 tons.

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(2) ALAVERDI (Copper Combine) (2,11)

aa. Installation: A concentration plant was built not until wartime. Until then rich ores were immediately smelted.

The copper smelting plant has ~~water-jacketed furnaces and converters~~

5 water-jacketed furnaces and converters.

Electrolytic department(built after the war)

Sulphuric acid plant

Power station: 5,000 kws(this station also supplies the ALAVERDI Copper Mines).

bb. Production: The 1949 crude copper production was estimated at 10,000 tons. ALAVERDI-mined ores and concentrates of the SANGESUR Plant are processed. As the ore ~~xxxxx~~ deposits of the ALAVERDI District are almost exhausted it is possible that the SANGESUR Works will be enlarged while the ALAVERDI Plant will only produce electrolytic copper.

(Combine)
(3) SANGESUR(north of KAFAN) (Copper Works, Concentration (sources No.2,11)

aa. Installation:

Concentration plant with 3 sections for copper quartzite and one section for copper zinc ore.

Copper smelting plant with 4 reverberatory furnaces and converters

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power station with three Diesel aggregates.

bb. Production: The 1949 crude copper production was estimated at 5,000 tons. According to unconfirmed reports an alleged expansion of the plant would increase production up to 10,000 tons. Considering the exhaustion of the ALAVERDI deposits and the opening of new and larger occurrences near SANGESUR(PIRDOUDAN,KADSHARAN) it is well probable that the center of the Caucasian crude copper production has shifted to SANGESUR.

(4) KRASNOURALSK (Copper Works) (Sources No.2,11) ILR

aa. Installation:

Concentration plant with ~~six sections~~ six sections

Copper smelting plant. It has a roasting furnace department with ^{eight} ~~8~~ "Gould" furnaces, and a reverberatory furnace department with five furnaces, each equipped with a forty-ton converter.

Sulphuric acid plant

Coal dust plant

bb Production: The 1949 crude copper production is estimated at 35,000 tons. The crude copper is delivered to the electrolytic department of the PYSHMA Plant.

Postwar construction work on a new workers' settlement

for the Copper Works may suggest an expansion of the plant

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capacity. However, this has still to be confirmed.

(5) KROVGRAD(KIROV Copper Works) (Sources No.2,11)

aa.Installation:

Concentration plant with four sections

Copper melting plant with three water-jacketed furnaces,

one reverberatory furnace department as well as five con-

verters (two of 62 tons each and three of 30 to 40 tons each)

Sulphuric acid plant(production of sulphuric acid from

pyritic wastes).

Power station : 11,000 kws

bb.Production: The 1949 crude copper production is estimated

It is processed into
at 33,000 tons. / ~~the~~ electrolytic copper is processed in the

PYSHMA Plant.

(6) KARABASH(Copper Works) (Sources No.2,11)

aa.Installation:

Concentration plant

Copper smelting plant with three water-jacketed furnaces,

one reverberatory furnace and four converters(40 tons each)

Flux department with four quartz furnaces and two lime kilns

Power station : 3,000 kws

bb.Production: The 1949 crude copper production is estimated

at 20,000 tons. The produced crude copper is processed in

the PYSHMA and KYSHTYM Electrolytic Plants.

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(7) REVDA ("SUMS" Copper Works) (Sources No.2,11)

aa. Installation:

Concentration plant with six sections

Copper smelting plant with four cupola furnaces (volumetric capacity about 65 tons each) and three converters (totaling capacity 150 tons).

Superphosphate ~~factory~~ plant

Sulphuric acid plant

Power station: 12,000 kws

bb. Production: The 1949 crude copper production is estimated at 20,000 tons. The crude copper is processed in the KYSHTUM Electrolytic Plant.

(9) MEDNOGORSK (Copper Works) (Sources No.2,11)

aa. Installation:

Concentration plant with two sections

Copper smelting plant with two water-jacketed furnaces and two converters

Copper sulphide plant for smelting sulphurous copper ore

Briquetting factory

Sulphuric acid plant

bb. Production. The 1949 crude copper production is estimated at 25,000 tons. The crude copper is processed in the KYSHTUM

Electrolytic Plant. Expansion to the scheduled 50,000 ton-

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capacity is under way.

(10) PYSHMA (Electrolytic Plant) (Sources No.2,11) **)

aa. Installation:

Concentration plant

Copper smelting plant with three furnaces with 15 ton volumetric capacity each.

Refining department with five reverberatory furnaces

Electrolytic department

Mud-processing department for the production of gold, silver, selenium, tellurium and indium.

bb. Production: The 1949 electrolytic copper production is estimated at 95,000 tons and the 1949 crude copper production at 2,000 tons.

(11) KYSHTYM (Electrolytic plant) (Sources No.2,11) R

aa. Installation:

Dry dressing plant

Copper smelting plant with two converters

Electrolytic department

Mud-processing department for the production of gold, silver, selenium and tellurium

bb. Production: the 1949 electrolytic copper production is estimated at 12,000 tons the the crude copper production at 2,000 tons.

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(12) KARSAPAI (Copper Works) (Sources No.2,11)

aa. Installation:

Concentration plant

Copper smelting plant with cupola furnaces and two converters

Power station

bb. Production: The 1949 crude copper production is estimated at 27,000 tons.

The produced crude copper is processed in the PYSHMA Electrolytic Plant.

(13) BALKHASH (Copper Works) (Sources No.2,11)

aa. Installation:

Concentration plant with six sections

Copper smelting department with three cupola furnaces and three converters

Power station : 50,000 kws

bb. Production: the 1949 crude copper production is estimated at 50,000 tons. Substantial amounts of molybdenum are also produced.

The total annual capacity of the BALKHASH Combine and of the DZYZKAZGAN-KARSAPAI Combine is scheduled to be increased to 200,000 tons of crude copper.

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(14) GLUBOKOYE ("Irtys"Polymetal Combine) (Sources No.2,11)

aa.Installation:

Copper smelting plant with water-jacketed furnaces and converters

power station: 8,500 kws

bb.Production: The 1949 crude copper production is estimated at 10,000 tons.Also the concentrates of the LENINOGORSK(formerly RIDDER) and BARNAUL Lead Works are processed.

(15) NORILSK (Nickel Combine)(Sources No.2,11)

aa.Installation: details are not available

bb. Production: The 1949 crude copper production is estimated at 1,000 tons. Copper is a by-product of nickel production.

c. Summary:

Run

a. The Soviet Union will ~~not~~ become independent of copper imports during the next years due to the considerable increase of domestic production.

The current domestic requirements will ~~not only~~ be ~~comple~~
Run
~~tely~~ secured, but also stockpiling ~~will~~ be possible.

b. The Soviet copper production is centered in the Urals and Kazakhstan ~~xx~~ regions

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1949 production (estimate)

		percentage of total output
Urals area	145,000 tons	57
Kazakhstan area	87,000 "	35
Other regions	18,000	8
Total	250,000 tons	100

The Kazakhstan production will ~~increase progressively~~ progressively increase in the coming years. The production shares of the Kazakhstan and Urals regions will then be about equal for some time.

c. The intensified processing of inferior ores will require a capacity increase of the concentration plants as well as an improvement of operation efficiency.

d. The capacity of the electrolytic plants does not cover domestic requirements. No appropriate electrolytic capacity is available especially for the Kazakhstan-produced crude copper. This bottleneck will be eliminated not until the the KARAGANDA Electrolytic Plant is completed. The realization of this project cannot yet be estimated, but it will not be achieved before 1955.

*) This report is based on following information material:

1. "The most important mineral deposits of the globe" Edition No.3
- Reichsstelle for geological research, BERLIN 1941 -
2. "The raw material bases of the Soviet Union"

- Publication of the Economic Department of the I.G. Farben, 1939-

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3. "The raw material situation in the Soviet Union"
 - Summarizing treatise of the German High Command, 1942-
 4. "Ekonomika Zvetnoi Metallopromyshlennosti SSSR"
 - Professor W.E.POTRESOV, MOSCOW 1938 -
 5. "Copper" - G.BERG and FRIEDENSBURG, STUTTGART 1949
 6. "The Five Year Plan of the Soviet Union, 1946 to 1950 "-
 - SMA Publication, BERLIN 1947 -
 7. "Ekonomicheskaya Geografija SSSR "
 - Gosisdatt, MOSCOW 1940 -
 8. "USSR" in figures "
 - Institute for Economic Research, BERLIN 1941 -
 9. "Prawda", "Izvestiya", "Trud", and Vneshnaya Torgovlya" (1948 to 1949)
from 1946 to 1948.
 - 10 "Metall Bulletin" 1948 and ~~XXXXXX~~ German newspaper reports
from 1947 to 1949
 11. Wartime records (PW interrogation of Soviet PW's) of the
former German Armed Forces.
 12. *Copy from paper diff. Vsf. (1946-49)*
- **.) Reference is made to Ec Eval Rep. MGL 1381 regarding the
Electrolytic Plant in PYSHMA (Urals)

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Area of deposits	Location of deposits	Kind of deposits	Amount of reserves with indication of categories	Percentage of copper content	Mining and smelting
MONCHEGORSK; west of KIROVSK and at the Imandra Lake (Northwest Part of the Soviet Union)	-	magnetic pyrites copper pyrites	More than 10,000 tons of Categories A and B Considerable reserves of Category C	0.3 percent (occasionally 4 percent) copper also nickel and platinum ores	Since 1939 mining as by-product of nickel
PITKAERANTA; northeast of the Ladoga Lake (Northwest Part of the Soviet Union)	-	copper pyrites zinc blende galena	500,000 tons of ores (all categories)	Up to 2.7 percent copper Up to 2.65 percent copper	Suspended since 1910. Dressing is complicated. Possibilities of processing are being investigated. No mining. At present being prospected.
North and east of the Onega Lake (Northwest Part of the Soviet Union)	/ MELVESHEGORSK and other towns	-	allegedly considerable amounts	Allegedly considerable copper content. Also tin and ore content. Copper content allegedly higher than lead and zinc content	No mining; resources probably too slight for investigation. No copper production. So far only mining of lead and tin
Eastern Ukraine	NAGOLNI-KRYASH (Donbas region) MARIUPOL	-	DERDORAK: 14,300 tons of copper (A, B and C) DZHIMARIN: 450 tons of copper 265 tons of arsenic (A, B, and C) DARGAS: 5,000 tons of copper (A, B and C)	Probably slight copper content	No mining
BURON (North Caucasus), Azerbaijan (Southwest Gruzija) (Caucasus area)	Part of the Prichorosk deposits at the Turkish border (DERDORAK, DZHIMARIN, DARGAS)	-			

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ALAVERTI (Armenian SSR) (Caucasus area)	MADAN near ALAVERTI, AKHTALA North of ALAVERTI, SHAUMYAN, SHAMLUK	Copper pyrites; iron pyrites	more than 20,000 tons in categories A and B) more than 74,000 tons (C)	4.3 to 6.7 percent copper 2.0 percent tin	Mining is under way; smelting is done in ALAVERTI
KAFAN (Armenian SSR) (Caucasus area)	SANGESUR, AGARAK, PIROUDAN	SANGESUR: copper pyrites; pyrites AGARAK, PIROU- DAN: molybdenum containing copper pyrites	SANGESUR: 15,000 tons of copper (A and B) AGARAK: 500,000 tons of copper (A, B and C) including 130,000 tons of copper (A and B) and 25,000 tons of molybdenum (A, B and C) PIROUDAN: 130,000 tons of copper (A, B and C) also unknown quantity of molybdenum	5 to 6 percent copper 1.5 to 2.5 percent 10.6 percent copper 0.03 to 0.04 percent molybdenum 1 percent copper	Mining under way; Concentration in SANGESUR. Mining uncertain. Smelting under way. Smelting in ALAVERTI
KADSHARAN (Armenian SSR) (Caucasus area)		Copper molyb- denum ore			
KIROVABAD (Azerbaijan SSR) (Caucasus area)					Preparations are made for mining
West Urals	District of MOLOTOV and CHKALOV	bearing Copper- sandstone	allegedly consid rable quantities		Mining uncertain
Northern group (Urals area)	TUMINSK (3rd "Internationale" formerly "St. Donato") NADEZHINSK resp. NIZHNI-TAGIL VOLKOV, KRASNOKHARDEISK, NOVO-LEVINSK	Copper- molybdenum ores Copper pyrite and pyrites	40,000 tons 302,000 tons (A, B) 242,000 " (A, B and C) 98,000 tons (A, B)	1.5 to 1.9 percent 2 to 3 percent copper copper 1 to 2 percent tin 2 to 4.3 percent copper, also tin	Slight local mining activities mining under way; smelting in KRASNOURALSK
Central group (Urals area)	KRIVGRAD, BELORECHKA, OBNOVLENKA, KARPUSHIKHA, LEVIKHA (13 sites), SHELTANSKOYE, XXXXXXXXXXXXXXXXXXXX PYSHMA-KLYUCHEVKA	Copper pyri iron pyrite pyrites Copper pyrites and pyrites	30,000 tons (A, B and C)	copper, up to 4 percent	Mining under way. Smelting in KIROV- GRAD

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	DYEGTYARKA	copper pyrites pyrites	175,000 tons (A and B) 700,000 " (A, B and C) 1,000,000 tons (A, B and C)	copper tin 1.1 percent	mining under way; smelting in REVDA
	KARABASH, SOIMONOVSKI valley, KUZNECHIKHA	copper pyrites pyrites	104,000 tons (A, B) 138,000 " (A, B and C)	2 to 3 percent copper 1 to 2 percent tin	Mining under way Smelting
Southern group (Urals area)	BAIMAK-TANALYK BLYAVA	copper pyrites, iron pyrites copper glance, copper pyrites and pyrites	200,000 tons (A, B, C) 400,000 " (A, B, C)	4.7 to 6 percent 9.5 to 2.08 percent (on the average : 2 percent)	in KARABASH mining under way, Smelting in BAIMAK Mining underway Smelting in BLYAVA
Kazakhstan area	BURIBAI	copper pyrites, iron pyrites			
	KYSIL-KUDUK (20 miles southwest ORSK)	copper pyrites, iron pyrites			allegedly large reserves No mining
(Eastern group)	BOSHCHUKUL (180 miles west of PAVLODAR)	Porphyrytic ores	allegedly large reserves 1,100,000 (A, B) 1,800,000 (A, B, C)		No mining No mining
	MAIKAINSK near KARKARALINSK, KAIRANT, USPENSK near KARKARALINSK				No mining
(Western group)	DEHEZGASSAN	Copper-bearing sandstones	1,500,000 tons (A, B)	1.5 percent	No mining Mining under way, smelting in KARSAPAI
(Southern group)	KOUNRAD	Porphyrytic ores	3,700,000 " (A, B, C)	1.5 percent average	
(Central Asia)	ALMALYK south of TASHKENT, Uzbek SSR	Porphyrytic ores	2,100,000 " (A, B)		mining under way, smelting in BALKHASH
	NAUKAT, Tadzhik SSR		2,600,000 " (A, B, C)	1 percent	
(West Siberia)	GLUBOKOYE (near RIDDER)		3,000,000 " (A, B, C)	0.9 percent	Preparations are made for mining and smelting
	GLAFININ, YULIYA, ULENSKI (in the Khakass region)				No mining
			200,000 tons (A, B) 300,000 " (A, B, C) 530,000 " (A, B, C)		Mining under way; smelting in GLUBOKOYE 1.2 percent No more mining operations

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(Eastern Siberia) NERCHINSK and other
localities between
the Shilka and
Argunya Rivers

295,000 tons (A,B,C)

Northwest Siberia NORILSK
(at the Yenisei estuary) copper, nickel
(ores also contain
platinum and cobalt)

very considerable reserves

Novaya Zemlya island BELUZYIA (southern
part of the southern
island, the so-called
"copper peninsula) pure copper,
copper pyrites
iron pyrites

No mining; hardly ~~xxxxxxx~~
prospected

Mining under way, copper
production as by-product
of the NORILSK Plant

No mining

No mining, hardly prospected

Far East ?

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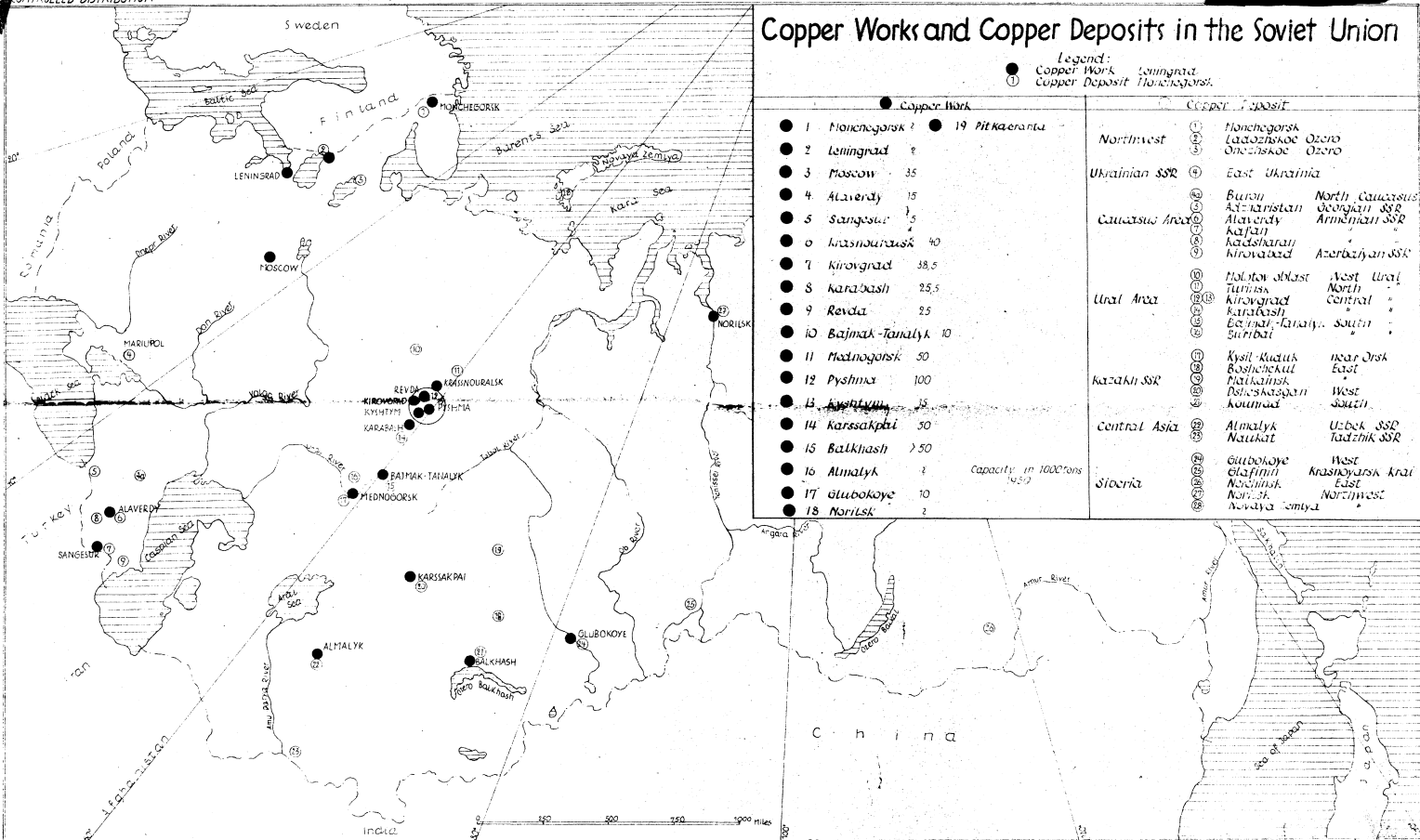
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Annex 1 to

Copper Works and Copper Deposits in the Soviet Union

Legend:
● Copper Work Leningrad
① Copper Deposit Leningrad

Copper Work		Copper Deposit	
● 1 Monchegorsk ?	● 19 Pitkaeranta	Northwest	① Monchegorsk
● 2 Leningrad ?			② Ladozhskoe Ozero
● 3 Moscow 35			③ Onegskoe Ozero
● 4 Alaverdy 15		Ukrainian SSR	④ East Ukraine
● 5 Sangster 1.5			⑤ Bureya North Caucasus
● 6 Krasnodarsk 40		Caucasus Area	⑥ Alaverdy Georgian SSR
● 7 Kirovgrad 38.5			⑦ Kaldshar Armenian SSR
● 8 Karabashi 25.5			⑧ Kirovabad Azerbaijan SSR
● 9 Revda 2.5		Ural Area	⑨ Tobolsk West Ural
● 10 Bajmak-Tanatyk 10			⑩ Kirovgrad North
● 11 Mednogorsk 50			⑪ Karabashi Central
● 12 Pyshma 100			⑫ Ekimbatul South
● 13 Krasnaya 15			⑬ Zhetysay
● 14 Karssakpai 50		Kazakh SSR	⑭ Kysil-Kuduk near Orsk
● 15 Balkhash > 50			⑮ Boshchekul East
● 16 Almaty 1	Capacity in 1000 tons		⑯ Patkaiush Dzhirgatal West
● 17 Glubokoye 10	1959	Central Asia	⑰ Kounrad South
● 18 Norilsk 2			⑱ Almaty Uzbek SSR
			⑲ Naukat Tadzhik SSR
		Siberia	⑳ Glubokoye West
			㉑ Glafimsk Krasnoyarsk Krai
			㉒ Norilsk East
			㉓ Norilsk Northwest
			㉔ Norilsk



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